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(71) **RIBEZZO, NICK,
10991 Torbram Rd., BRAMPTON, O1 (CA).**

RIBEZZO, NICK (CA).

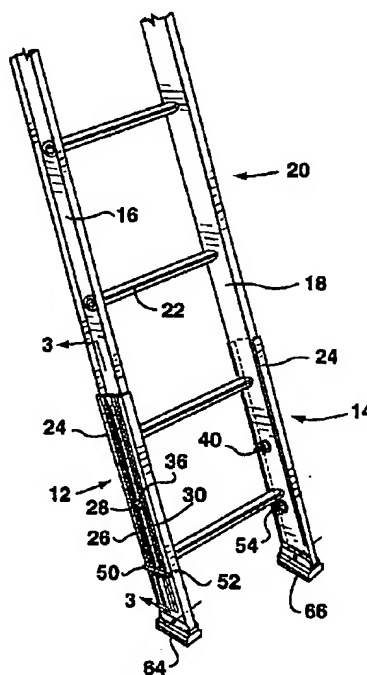
(74) **GOWLING LAFLEUR HENDERSON LLP**

(72)

(54) **RALLONGE D'ECHELLE POUR SOL INEGAL**
(54) **LADDER EXTENSION FOR UNEVEN GROUND**

(57)

A ladder extension has an elongated channel-shaped member positionable over the lower end portion of a ladder side member, the channel-shaped member having an elongated slot extending the length thereof and a series of transverse recesses extending longitudinally along the channel-shaped member on each opposite side of the slot. A pair of nuts and bolts are provided for securing the channel-shaped member to the lower end portion of the ladder side member. The bolts have threaded shanks with free end portions passing through the slot and respective holes in the ladder side member, with the nuts being mounted on the free end portions of the bolt shanks projecting from the holes in the ladder side member. At least one of the bolts have a head with lateral extending securing portions engageable in a pair of transverse recesses in the ladder side member to maintain the selected longitudinal position of the channel-shaped member relative to the ladder side member when the nuts and bolts are in a tightened condition.





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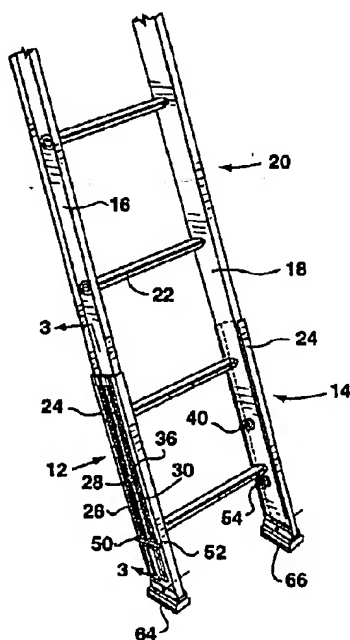
(71) Demandeur/Applicant:
RIBEZZO, NICK, CA

(72) Inventeur/Inventor:
RIBEZZO, NICK, CA

(74) Agent: GOWLING LAFLEUR HENDERSON LLP

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(57) Abrégé/Abstract:

A ladder extension has an elongated channel-shaped member positionable over the lower end portion of a ladder side member, the channel-shaped member having an elongated slot extending the length thereof and a series of transverse recesses extending longitudinally along the channel-shaped member on each opposite side of the slot. A pair of nuts and bolts are provided for securing the channel-shaped member to the lower end portion of the ladder side member. The bolts have threaded shanks with free end portions passing through the slot and respective holes in the ladder side member, with the nuts being mounted on the free end portions of the bolt shanks projecting from the holes in the ladder side member. At least one of the bolts have a head with lateral extending securing portions engageable in a pair of transverse recesses in the ladder side member to maintain the selected longitudinal position of the channel-shaped member relative to the ladder side member when the nuts and bolts are in a tightened condition.

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ABSTRACT

A ladder extension has an elongated channel-shaped member positionable over the lower end portion of a ladder side member, the channel-shaped member having an elongated slot extending the length thereof and a series of transverse recesses extending longitudinally along the channel-shaped member on each opposite side of the slot. A pair of nuts and bolts are provided for securing the channel-shaped member to the lower end portion of the ladder side member. The bolts have threaded shanks with free end portions passing through the slot and respective holes in the ladder side member, with the nuts being mounted on the free end portions of the bolt shanks projecting from the holes in the ladder side member.

At least one of the bolts have a head with lateral extending securing portions engageable in a pair of transverse recesses in the ladder side member to maintain the selected longitudinal position of the channel-shaped member relative to the ladder side member when the nuts and bolts are in a tightened condition.

LADDER EXTENSION FOR UNEVEN GROUND

FIELD OF THE INVENTION

This invention relates to ladder extensions which are adjustably securable to the lower
5 end portions of the side members of a ladder so that the ladder can be properly levelled on
uneven ground.

BACKGROUND OF THE INVENTION

Many such ladder extensions have previously been proposed, but there is still a need
10 for an improved ladder extension which is both secure and easily adjustable.

It is therefore an object of the present invention to provide an improved ladder
extension.

SUMMARY OF THE INVENTION

15 According to the present invention, a ladder extension comprises an elongated
channel-shaped member positionable over the lower end portion of the side member of a
ladder such that the lower end portion of the side member is received within an upper portion
of the channel-shaped member and a lower portion of the channel-shaped member projects
downwardly beyond the lower end portion of the ladder side member. The channel-shaped
20 member has an elongated slot extending along the length thereof and a series of transverse
recesses extending longitudinally along the channel-shaped member on each opposite side
of the slot.

The channel-shaped member is secured to the lower end portion of the ladder side member by a pair of nuts and bolts, with the bolts having threaded shanks with three end portions passing through the slots and respective holes in the ladder side member and the nuts being mounted on the threaded free end portions of the bolt shanks projecting from the holes in the ladder side member, whereby the longitudinal position of the channel-shaped member relative to the ladder side member can be adjusted when the nuts and bolts are in a loose end condition to effectively lengthen or shorten the ladder side member for levelling purposes.

At least one of the bolts has a head with laterally extending securing portions engageable in a pair of transverse recesses on opposite sides of the slot in the channel-shape member to maintain the selected longitudinal position of the channel-shape member relative to the ladder side member when the nuts and bolts are in a tight end position.

A ladder extension in accordance with the present invention is both secure and easily adjusted, and can be used with extension ladders and one-piece ladders.

One embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, of which:

DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the lower part of a ladder with an extension assembly in accordance with the invention attached thereto,

Fig. 2 is an explodes perspective view of the lower portion of a side member of the ladder and associated extension,

Fig. 3 is a sectional view along the line 3-3 of Fig. 1 and

Fig. 4 is a sectional view of the ladder and extension assembly of Fig. 1 standing on
 5 uneven ground.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings, a ladder and ladder extension assembly comprises a pair of ladder extensions 12, 14 each securable to a respective side member 16, 18 of a ladder 20 which also has rungs 22. Ladder extensions 12, 14 each comprise an elongated channel-shaped member 24 positioned on the lower end portion of a respective ladder side member 16 or 18 such that the lower end portion of the ladder side member 16 or 18 is received within the upper portion of the elongated channel-shaped member 24 and the lower end portion of the channel-shaped member 24 projects downwardly beyond the lower end portion of the ladder side member 16 or 18.
 15

Each channel-shaped member 24 has an elongated slot 26 extending along the length thereof and a series of transversely extending recesses 28, 30 extending longitudinally along the channel-shaped member 24 on each opposite side of the slot 26. Each extension 12, 14 also includes a pair of nut and bolt assemblies 32, 34. Each nut and bolt assembly 32 comprises a carriage bolt 36 with a round head 38 and a threaded shank 40, a wing nut 42, a rubber washer 44 and a steel washer 46. Each nut and bolt assembly 34 comprises a bolt
 20

48 having a head with laterally extending rod portions 50, 52 and a threaded shank 54, a wing nut 56, a rubber washer 58, a steel washer 60 and a further steel washer 62.

Two holes 68, 70 (see Fig. 2) are drilled in each ladder side member 16, 18, the holes 68 being just below the lowest run 22 and the hole 70 being somewhat above the lowest rung
5 22 and the hole 70 being somewhat above the lowest rung 22.

Each channel shaped member 24 is secured to the respective ladder side member 16 or 18 by first passing the carriage bolt 36 through the slot 30 from the outside and through the hole 68 in the ladder side member. The rubber washer 44, the steel washer 46 and the wing nut 42 are then mounted on the end of the threaded shank 40 which projects from the
10 ladder side member. The bolt 48, with the steel washer 62 already mounted on the shaft 54, is then passed through the slot 30 from the outside and through the hole 70 in the ladder side member. The rubber washer 58, the steel washer 60 and the wing nut 56 are then mounted on the end of the threaded member shaft 54 which projects from the ladder side member.

The conventional fee 64, 66 previously attached in known manner to the lower ends
15 of ladder side members 16, 18 are detached therefrom and mounted in the same manner on the lower ends of channel-shaped members 24.

When the wing nuts 42, 56 are loosened, the channel shaped member 24 can be slid relative to the ladder side member 16 or 18, with the bolts 36, 48 sliding in the slot 30 to position the lower end of the elongated-shaped member 24 an appropriate distance below the
20 lower end of the ladder side member, see Fig. 4 where the ladder is standing on uneven ground. The wing nuts 42, 56 are then tightened. Tightening of the wing nut 42 causes the

bolt head 38 to tightly engage the outside of the channel-shaped member 24 between the laterally extending recesses 28, 30. Tightening of the wing nut 56 causes the laterally extending rod portions 50, 52 of the bolt 48 to seat in adjacent laterally extending recesses 28, 30 respectfully, with steel washer 62 engaging the outside of the channel-shaped member 24 therebetween.

The seating of the laterally extending rod portions 50, 52 of the bolt 58 in the transversely extending recesses 28, 30 prevents any longitudinal sliding movement of the channel-shaped member 24 relative to the latter side member 16 or 18, thereby providing a very safe arrangement. This arrangement can nevertheless be readily adjusted by loosening the wing nuts 42, 56 so that the rod portions 50, 52 become disengaged from the recesses 28, 30. The channel-shaped member 24 can then be adjusted longitudinally relative to the ladder side member 16 or 18 for levelling purposes as required.

The advantages of the present invention will now be readily apparent to a person skilled in the art from the foregoing description of a preferred embodiment. Other embodiments of the invention will also now be readily apparent to a person skilled in the art, the scope of the invention being defined in the appended claims.

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I CLAIM

1. A ladder extension securable to a lower end portion of a side member of a ladder, said extension having:

an elongated channel-shaped member positionable over the lower end portion of the ladder side member such that the lower end portion of the ladder side member is received within an upper portion of the elongated channel-shaped member and with a lower end portion of the elongated channel-shaped member projecting downwardly beyond the lower end portion of the ladder side member,

the channel-shaped member having an elongated slot extending the length thereof and a series of transverse recesses extending longitudinally along the channel-shaped member on each opposite side of the slot, and

a pair of nuts and bolts for securing the channel-shaped member to the lower end portion of the ladder side member, with said bolts having threaded shanks with free end portions passing through the slot and respective holes in the ladder side member and said nuts being mounted on the free end portions of the bolt shanks projecting from the holes in the ladder side member, whereby the longitudinal position of the channel-shaped member relative to the ladder side member can be adjusted when the nuts are in a loosened condition to effectively lengthen or shorten the ladder side member for levelling purposes, and

at least one of the bolts having a head with lateral extending securing portions engageable in a pair of transverse recesses in the ladder side member to maintain the selected

longitudinal position of the channel-shaped member relative to the ladder side member when the nuts and bolts are in a tightened condition.

2. A ladder and ladder extension assembly including:

5 a ladder having a pair of side members and longitudinally spaced rungs extending there between, and

a ladder extension having an elongated channel-shaped member positioned over a lower end portion of one of the ladder side members with the lower end portion of the ladder side member being received within an upper portion of the channel-shaped member and with
10 a lower portion of the channel shaped member projecting downwardly beyond the lower end portion of the ladder side member,

the channel-shaped member having an elongated slot extending along the length thereof and a series of transverse recesses extending longitudinally along the channel-shaped member on each opposite side of the slot, and

15 a pair of bolts securing the channel-shaped member to the lower end portion of the ladder side member, said bolts having shanks with threaded free end portions passing through the slot and respective holes in the ladder side member and said nuts being secured on the threaded free end portions of the bolt shanks projecting from the holes in the ladder side member, whereby the longitudinal position of the channel-shaped member relative to the
20 ladder side member can be adjusted when the nuts and bolts are in a loosened condition to effectively lengthen or shorten the ladder side member for levelling purposes, and

at least one of the bolts having a head with laterally extending securing portions engageable in a pair of transverse recesses in the ladder side member to maintain the selected longitudinal position of the channel-shaped member relative to the ladder side member when the nuts and bolts are in a tightened condition.

FIG. 1

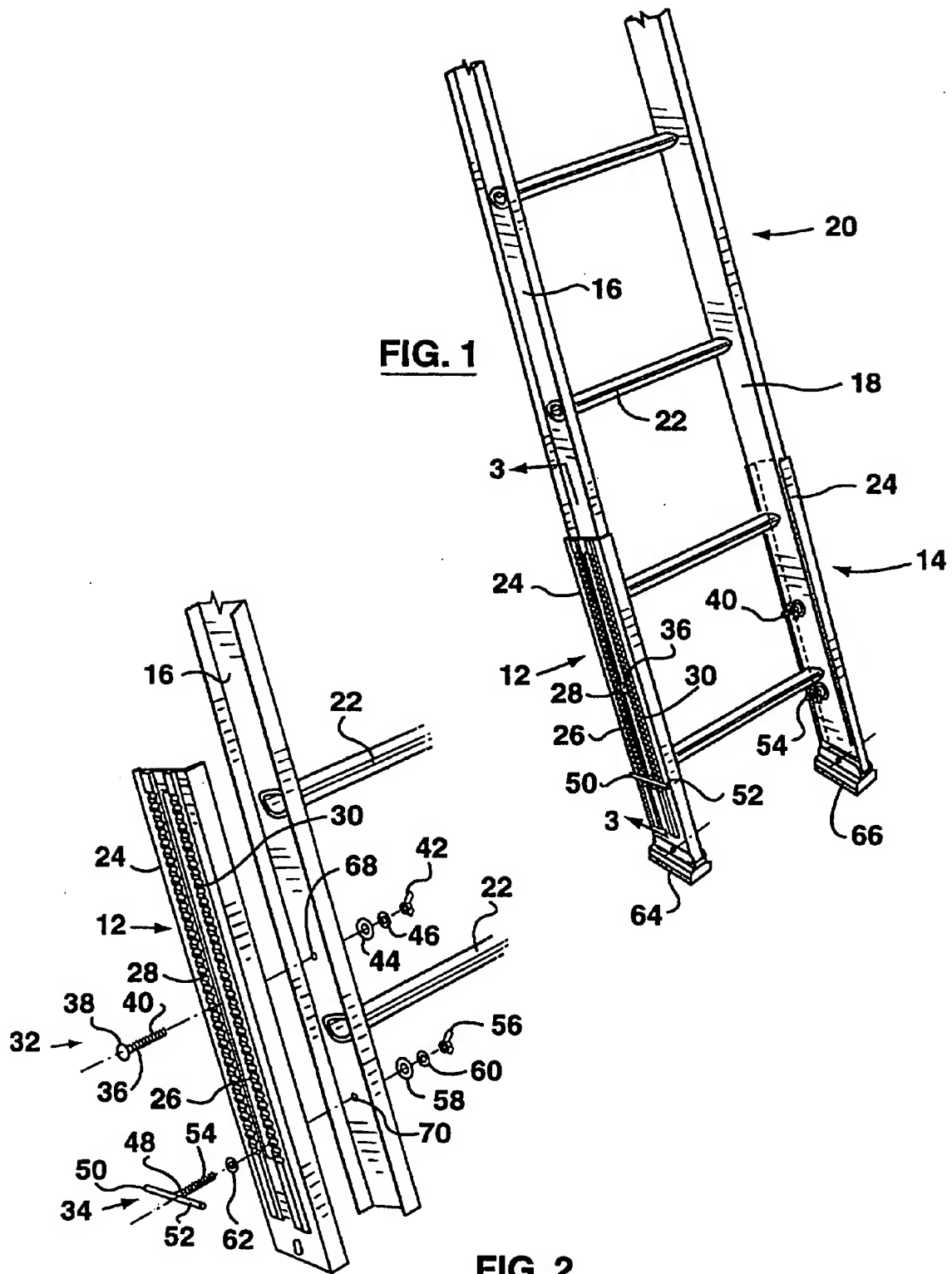


FIG. 2

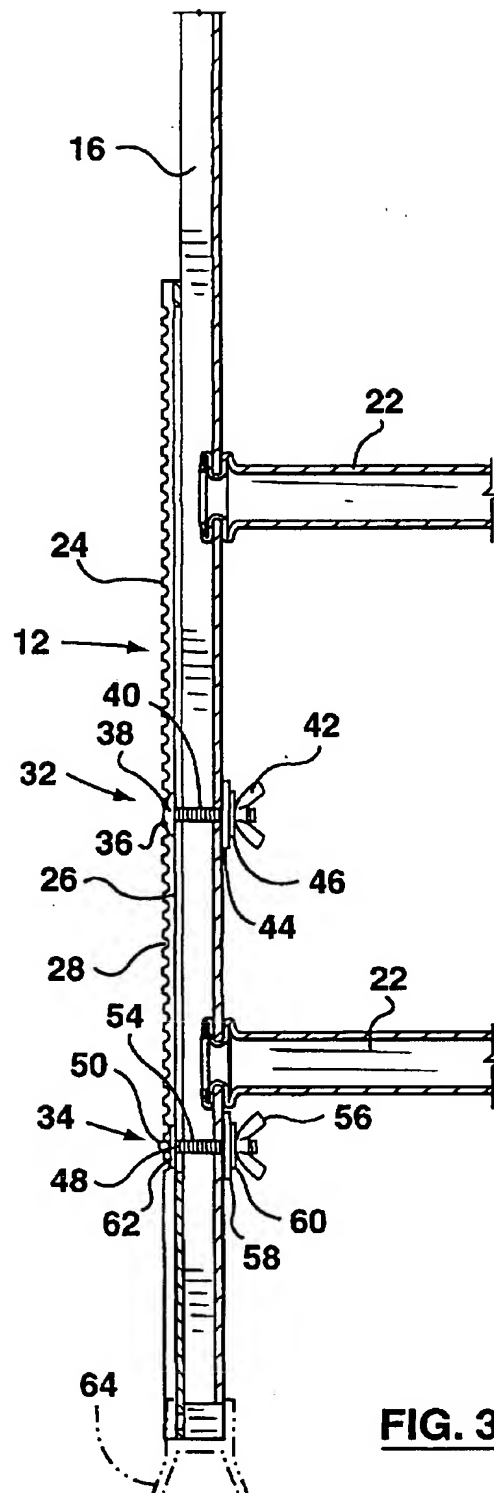


FIG. 3

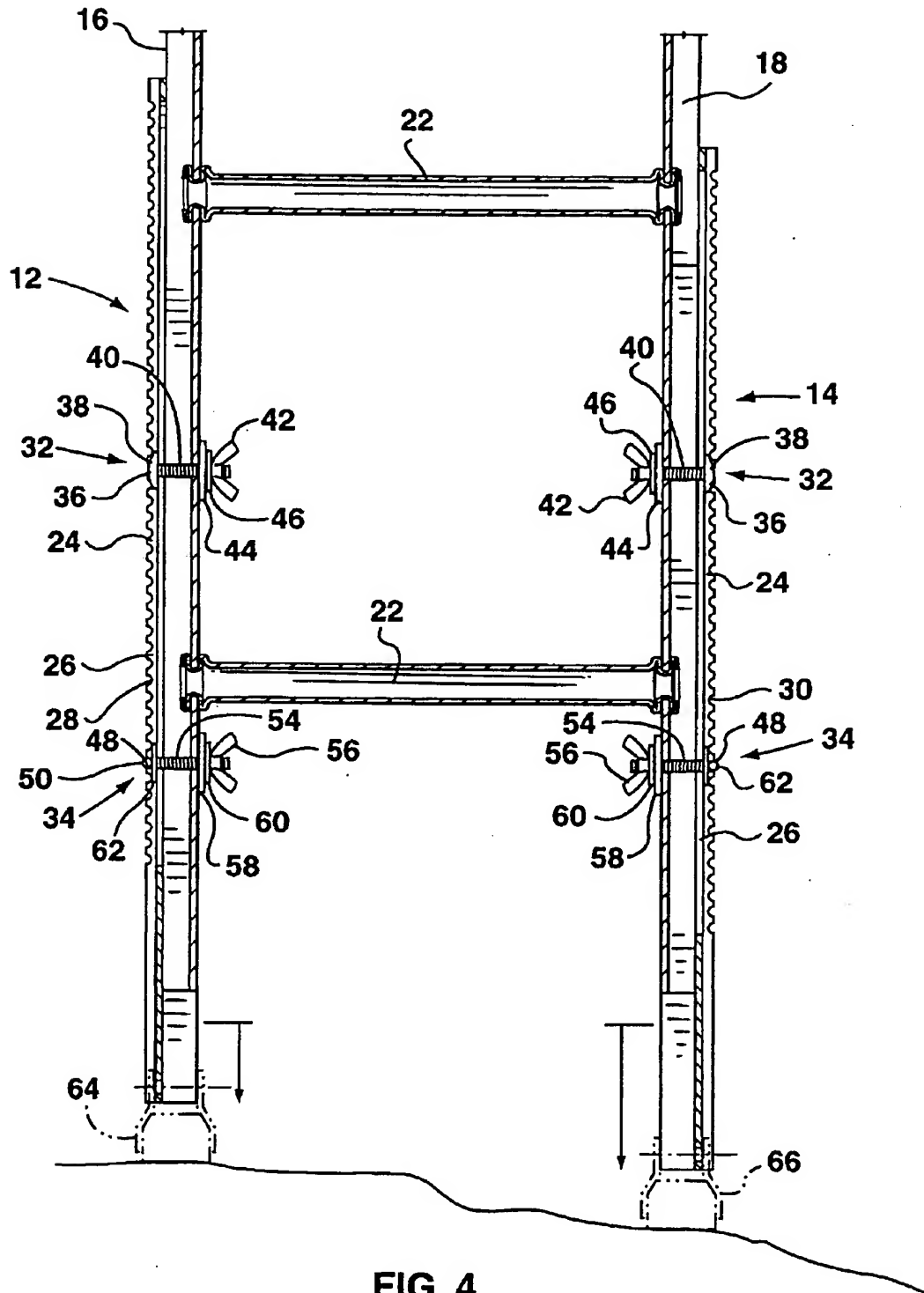


FIG. 4